

Management of Childhood Febrile Illness Prior to Clinic Attendance in Urban Nigeria

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ABSTRACT

Parents and caregivers often try various treatment modalities for their sick children before bringing them to clinic. Many community-based studies have documented home and self-treatment practices, often with the aid of patent medicine vendors, but less is known about prior treatment behaviour of caregivers who actually reach a government clinic. This study, therefore, aimed at documenting the treatment provided by caregivers prior to their attendance at a public hospital. Beginning in April 1996, a year-long study was conducted among 1,943 sick children and their caregivers who attended the largest government-owned paediatric hospital in Lagos, Nigeria. The major complaints mentioned by the caregivers included fever, cough, and diarrhoea. Most (89%) caregivers had administered some form of medicine to the child prior to the clinic visit, and on average, 2.5 medications had been given. Associations were found between major complaint and type of medicine given: fevers were associated with antimalarial drugs and analgesics (antipyretics), cough was associated with cough syrup and analgesics, while diarrhoea was associated with antidiarrhoeal drugs. Although one-fifth of the children had received an antibiotic, provision of antibiotics was not associated with a particular complaint/illness. Since caregivers appeared to use perceived complaints/illnesses as a treatment guide, this can form the basis of safer and more appropriate recognition of illness and home management. In addition, the information obtained in this study can be used for training clinicians to inquire about home management and, thus, for making more informed decisions about their own treatment and prescribing practices.

Key words: Child health; Child care; Drug therapy; Nigeria

INTRODUCTION

Any response to illness depends on the ability of patient or caregiver to recognize correctly that a problem, in the form of signs and symptoms, is occurring (1) and to evaluate the seriousness of those indicators once recognized (2-4). Culture generally has been shown to influence recognition of illness (5) and choice of care (2,6). For example, the designation of acute respiratory

infection (ARI) as 'millet disease' in Uganda necessitates indigenous cures (7). In the case of diarrhoeal diseases, choice of type of western medicine may be based on the duration of illness (8). Choice of care depends on what options are actually available. In rural Zambia, for example, most caregivers have access to only one health facility and possibly one or two medicine shop(s) (9).

Management of child illness often begins at home (10), with the medicine shop being the second source of care (5,11). Most cases of illness begin and end with self-treatment (12), and most people are satisfied with their first choice of care (13). Preferences for government clinics over other sources have been recorded in some studies (14,15), but just as often, researchers have

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reported that community members have lost confidence in government facilities (7). In fact, parents report the more personable social interaction, ease of seeking advice, and flexible pricing policies at medicine shops as reasons for seeking care from patent medicine vendors (PMVs) (16).

Home care is a common response to illness that allows the caregiver time to monitor a child before making the expensive decision to seek help outside (3). Home care often starts with medicines already at home that were left over from previous prescriptions or bought from PMVs (3,17,18) or home remedies that include local herbs (11). Home treatment can also combine over-the-counter (OTC) drugs and herbs (10). Prompt first-line treatment is facilitated by purchase of OTC drugs from retail outlets (8,19). Home care for perceived malaria using chloroquine ranged from 18% to 83% in studies from Guinea and Togo respectively (1,20). Children who are eventually brought to a clinic usually have been given some biomedical drugs prior to arrival ranging from 50% to 80% (17,20-23).

The pathway of care for sick children was traced in a recent study of febrile illness in three rural Nigerian communities (13). PMVs were the most popular first choice of care (46.3%) for 3,006 families who sought treatment for their sick children. Of 675 families who sought a second form of treatment, PMVs still enjoyed a plurality at 29.5%. Even among 51 families who sought a third form of care for a recent illness, 17.6% used a PMV. Among those using another form of care first, PMVs were sought as a second choice by 58.4% who used herbs first, 61.7% who first went to a government clinic, and 31.3% who used a private clinic first. The current study was based on a clinic perspective and addressed the question: what should clinicians expect in terms of prior treatments given to sick children they receive?

MATERIALS AND METHODS

The study was part of a larger study on malaria morbidity in urban preschool-age Nigerian children at the Massey Street Children's Hospital, one of the largest government health facilities in the Lagos metropolitan area and the only one specifically catering to children. Prior to the study, the Lagos State Government had declared that treatment of malaria was free for all children patronizing government hospitals in the state, which resulted in greater attendance at the Massey Street Children's

Hospital and provided an impetus to study the condition of children who were brought to the facility and the actions that had been taken for them prior to attendance. A better understanding of home-based actions could be used for guiding health workers in providing better case management once children are brought to clinic.

The Massey Street Children's Hospital caters for 50,000 to 100,000 child patients annually. The population served by the hospital is ethnically mixed and comprises mainly Yoruba from the southwestern part of Nigeria, Igbo from the southeast, and Hausa from the north. Massey Street is located on Lagos Island in a high-density area with poor environmental sanitation and grossly inadequate basic amenities, including water supply. The hospital serves as both a primary care and referral facility for the half million people of Lagos Island Local Government, but also draws patients from Lagos State's population of 12 million (24). The people are a mix of Christians, Muslims, and indigenous religion practitioners.

The Lagos State Health Management Board and the Ethical Committee of the Nigerian Institute of Medical Research, Yaba, Lagos, approved the study. Informed consent was obtained from parents or guardians of subjects involved in the study. Caregivers were assured of the confidentiality of the results, and only children whose parents or guardians gave consent participated in this study.

Each child, on visiting the hospital, was first seen by the regular outpatient clinician. Clinical examination was performed, and diagnoses were made and recorded in the child's case record by the clinician. Children were then referred to the research physician for additional examination and laboratory tests. Of relevance to the component of the study reported here, the research physician took a detailed history of the child's illnesses/complaints and the actions taken by parent or caregiver prior to hospital consultation. The drugs given since the child's illness began were documented.

Analysis was undertaken to determine the major complaints and complaint complexes that prompted care-seeking at the clinic and to identify patterns of drugs that were most commonly given for each illness prior to the clinic visit. By so doing, the researchers hoped to learn more about how caregivers perceive and respond to child illnesses.

The study spanned a 12-month period beginning in April 1996. Children were recruited throughout the year to ensure that seasonality would not affect the type of

illnesses seen. Recruitment criteria included two main factors: (1) an age of 60 months or less and (2) presentation for the first time with their current illness.

RESULTS

In total, 1,943 children were seen that met the recruitment criteria. Their mean and median age was 19 months and 14 months respectively. Sixty-nine percent were aged less than two years, and 56% were males.

The number of illnesses/complaints reported by the caregivers ranged from 1 to 6, with an average of 2.3 per child. Seven major complaints mentioned by more than 10% of the respondents were recorded. High temperature/fever was the most common illness (60.6%), followed by cough (43.7%), diarrhoea (21.1%), and loss of appetite (17.0%). Other major complaints included vomiting (16.8%), catarrh (16.4%), and skin problems (11.4%), e.g. rashes (Table 1). Examples of other complaints included weight loss, cold/chills, convulsions, jaundice-like symptoms (yellow eyes/urine), injuries, eye and ear problems.

Table 1. Major complaints mentioned by caregivers

Complaint	No. (n=1,943)	Percentage
Fever	1,178	60.6
Cough	849	43.7
Diarrhoea	410	21.1
Loss of appetite	331	17.0
Vomiting	327	16.8
Catarrh	318	16.4
Skin problem, e.g. rashes	222	11.4
Eye problems	68	3.5
Weight loss	63	3.2
Ear problems	59	3.0
Difficult, abnormal breathing	49	2.5
Cold/chills	36	1.9
Injury	34	1.7
Convulsions	27	1.4
Jaundice	27	1.4
Others	427	22.0

The respondents reported that their children were given 0-5 different medication(s) prior to clinic visit (Fig. 1). Only 11.0% (214) gave nothing. The average number of drugs given was 2.5 with a median of 3. The five major forms of medication included analgesics (62.7%), vitamins and tonics (55.3%), antimalarials (23.7%), antibiotics (21.7%), and cough syrup (12.4%). Table 2 shows other medicines, including local herbs, antihistamines, and anthelmintics. Figure 2 shows that the proportion given any drugs decreases with the age of the child.

Table 3 shows results of testing the association between the six common medicines and the three most common illnesses/complaints, fever, cough, and diarrhoea.

Fig. 1. Number of medicines received prior to clinic visit

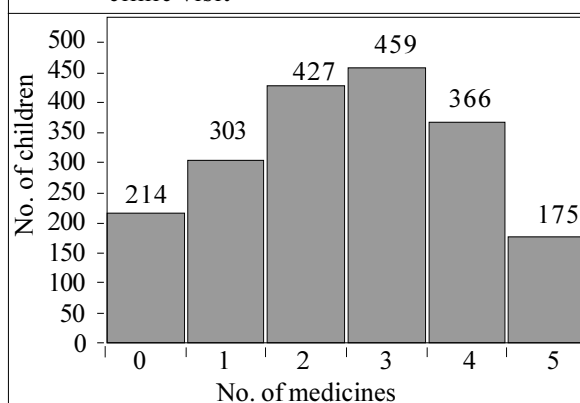
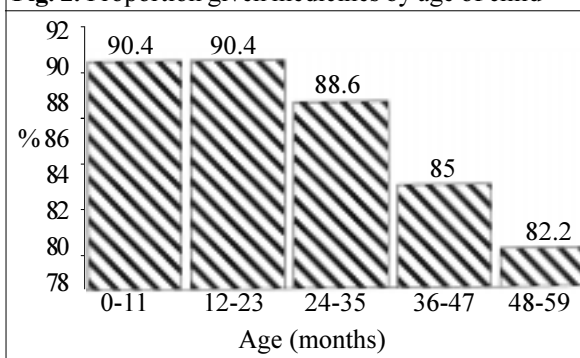


Table 2. Major medications taken prior to clinic visit

Medicine	No. (n=1,943)	Percentage
Analgesics/antipyretics	1,218	62.7
Haematinics/vitamins	1,075	55.3
Antimalarials	46	23.7
Antibiotics	421	21.7
Cough syrup	241	12.4
Local herbs	175	9.0
Antihistamines	90	4.6
Antidiarrhoeals	71	3.7
Anthelmintics	39	2.0
No drugs	214	11.0
Average no. of drugs	2.5	

Fig. 2. Proportion given medicines by age of child



Caregivers who reported fever were likely to have given their children antimalarial drugs and analgesics prior to clinic visit, although antimalarial drugs were given for only 30% of reported cases of fever, while analgesics

were given to 72% of children who had fever. The medicines associated with cough included analgesics, vitamins/tonics, and cough syrup. Reports of diarrhoea were negatively associated with taking cough syrup and positively associated with taking antidiarrhoeal drugs, although these were given to only 15% of children who had watery stool. Although antibiotics were given to nearly one-quarter of the children, their use was not associated with any particular illness or complaint.

Table 4 compares four factors with taking any drug prior to bringing the child to clinic. Giving any drug

DISCUSSION

As in other studies (17,20-23), the tendency to start some form of treatment for a sick child prior to visiting a clinic has also been documented here with 89% of the respondents having given something to their children. Therefore, this well-known and busy government children's hospital was the first choice of care for only 11% of the respondents. Other community-based studies have shown that the government clinic was also the first choice for only 11% of children in rural Nigeria (13). In contrast, 29% of caregivers in a Lagos-based study took

Table 3. Relationships between three common illnesses and common medicines

Medicine given	Illness			No. (n=1,943)
	Fever (n=1,178)	Cough (n=849)	Diarrhoea (n=410)	
Antimalarial				
No. (%)	354 (30.0)	212 (25.0)	100 (24.4)	460
OR	2.67	1.14	1.05	
95% CI	2.08-3.43	0.91-1.41	0.81-1.37	
Analgesic				
No. (%)	846 (71.8)	581 (47.7)	263 (21.6)	1,218
OR	2.69	1.56	1.08	
95% CI	2.21-3.28	1.28-1.89	0.86-1.37	
Vitamin/tonic				
No. (%)	667 (56.6)	496 (58.4)	224 (54.6)	1,075
OR	1.14	1.25	0.97	
95% CI	0.94-1.38	1.04-1.51	0.77-1.21	
Antibiotic				
No. (%)	248 (21.1)	196 (23.1)	98 (23.3)	421
OR	0.91	1.16	1.18	
95% CI	0.73-1.15	0.93-1.45	0.90-1.54	
Cough syrup				
No. (%)	158 (13.4)	201 (23.7)	37 (9.0)	241
OR	1.27	8.17	0.65	
95% CI	0.95-1.71	5.65-11.87	0.44-0.95	
Antidiarrhoeal				
No. (%)	42 (3.6)	23 (2.7)	63 (15.4)	71
OR	0.94	0.61	34.61	
95% CI	0.56-1.57	0.35-1.04	15.72-79.36	

CI=Confidence interval
OR=Odds ratio

prior to clinic visit was associated with the perceived symptoms of fever and cough among children, while the perceived presence of diarrhoea was not associated with giving drugs. A similar proportion of male and female children were given drugs prior to clinic visit. Figure 3 shows that the proportion of caregivers who gave drugs increased with the number of complaints (illnesses) that were mentioned.

their sick children to a government clinic first (25), but, of course, the Massey Street Children's Hospital is only one of many government clinics and health centres in the metropolis.

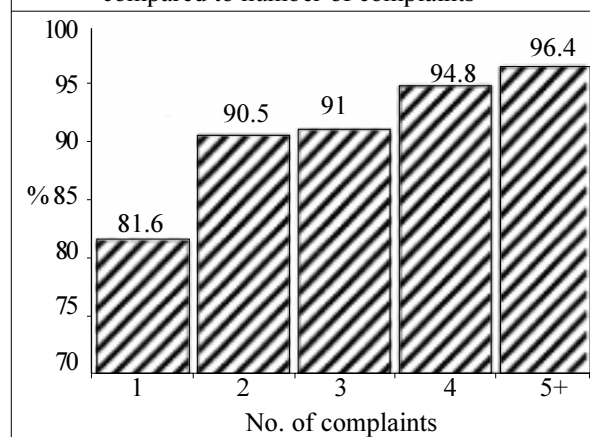
The important lesson for clinicians is that the vast majority of their very young paediatric patients will have received some form of medication prior to coming to clinic. In addition, most patients would have been given

at least two different kinds of medicines. Ironically, the younger and more vulnerable children appear more likely to receive medicines prior to clinic visit. These findings should inform both their interviewing and prescribing practices.

Table 4. Factors that may be associated with giving drugs prior to clinic visit

Factor	No.	%	χ^2_{Yates}	p value
Child had fever				
Yes	1,178	92.7	41.14	<0.0001
No	765	83.3		
Child had cough				
Yes	849	92.3	16.74	<0.0001
No	1,094	86.4		
Child had diarrhoea				
Yes	410	90.2	0.68	>0.40
No	1,533	88.6		
Sex of child				
Male	1,088	66.2	1.25	>0.26
Female	855	89.9		

Fig. 3. Proportion of caregivers who gave drugs compared to number of complaints



The results of this study indicate that caregivers do consider the perceived illnesses and complaints of their children when using medicines prior to a clinic visit, as shown by the associations between fever and antimalarial drugs, fever and analgesics (antipyretics), cough and cough syrup, and diarrhoea and antidiarrhoeal drugs. In particular, fever and cough appear to stimulate the use of medications prior to clinic visit as do the number of perceived problems (illnesses) affecting the child. This reveals a decision-making process among caregivers and provides a foundation for health education on safe and effective home-treatment practices.

The health-education process needs to account for certain dangers. While some drugs are clearly linked to

a child's perceived illness, antibiotics are not associated with any particular problem and, thus, appear to be used indiscriminately by over one-fifth of the respondents. The fact that caregivers do not appear to associate antibiotics with a particular condition may make it easier to discourage antibiotic use at home. Another concern is the use of antidiarrhoeal drugs. Although the overall use is low, that associated with perceptions of loose stool are as high as 13%. Little mention was made of oral rehydration therapy (ORT), although home-based fluids, such as salt-sugar solution, have been actively advocated by the health services since 1984 (26). Clearly, more public education on ORT is required.

While antimalarial drugs are sold as patent medicines throughout the country, and are, therefore, intended for first-line home care, there is still a need to monitor their use because increasing resistance to chloroquine has been documented in Nigeria (27). Clinicians need to realize that most caregivers who perceived that their children had fever will have given an antimalarial drug. Clinicians must, therefore, ascertain the type and dose already given prior to prescribing more, as dosage is often inadequate, contributing to the problem of drug resistance (28).

In conclusion, the results of this study show that existing self-care practices can form the basis for appropriate home management of childhood illness and guide the training of clinicians so that they are cognizant of prior administration of medications and use this information to help prevent drug resistance.

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